

National Aeronautics and
Space Administration

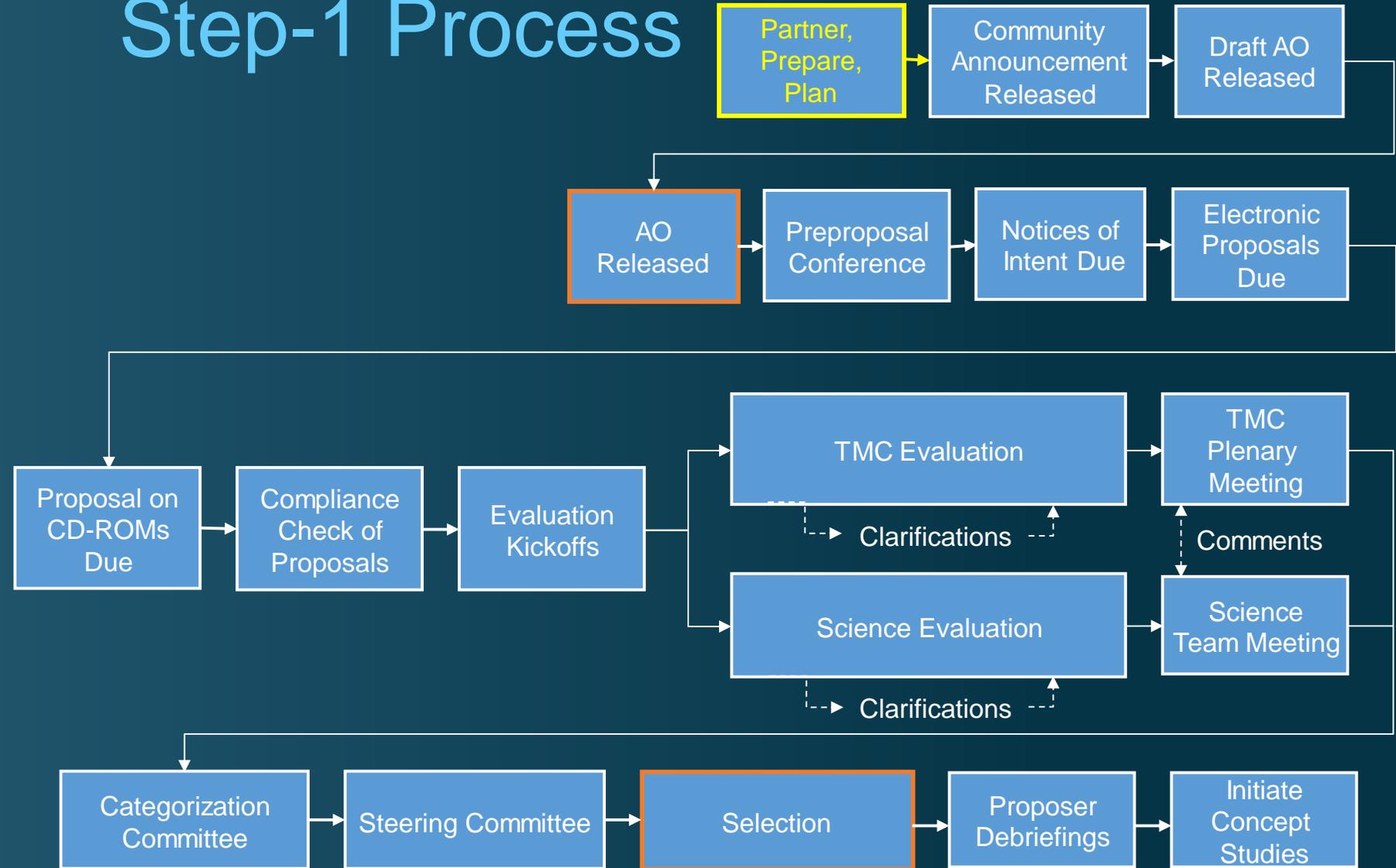


Proposal Process

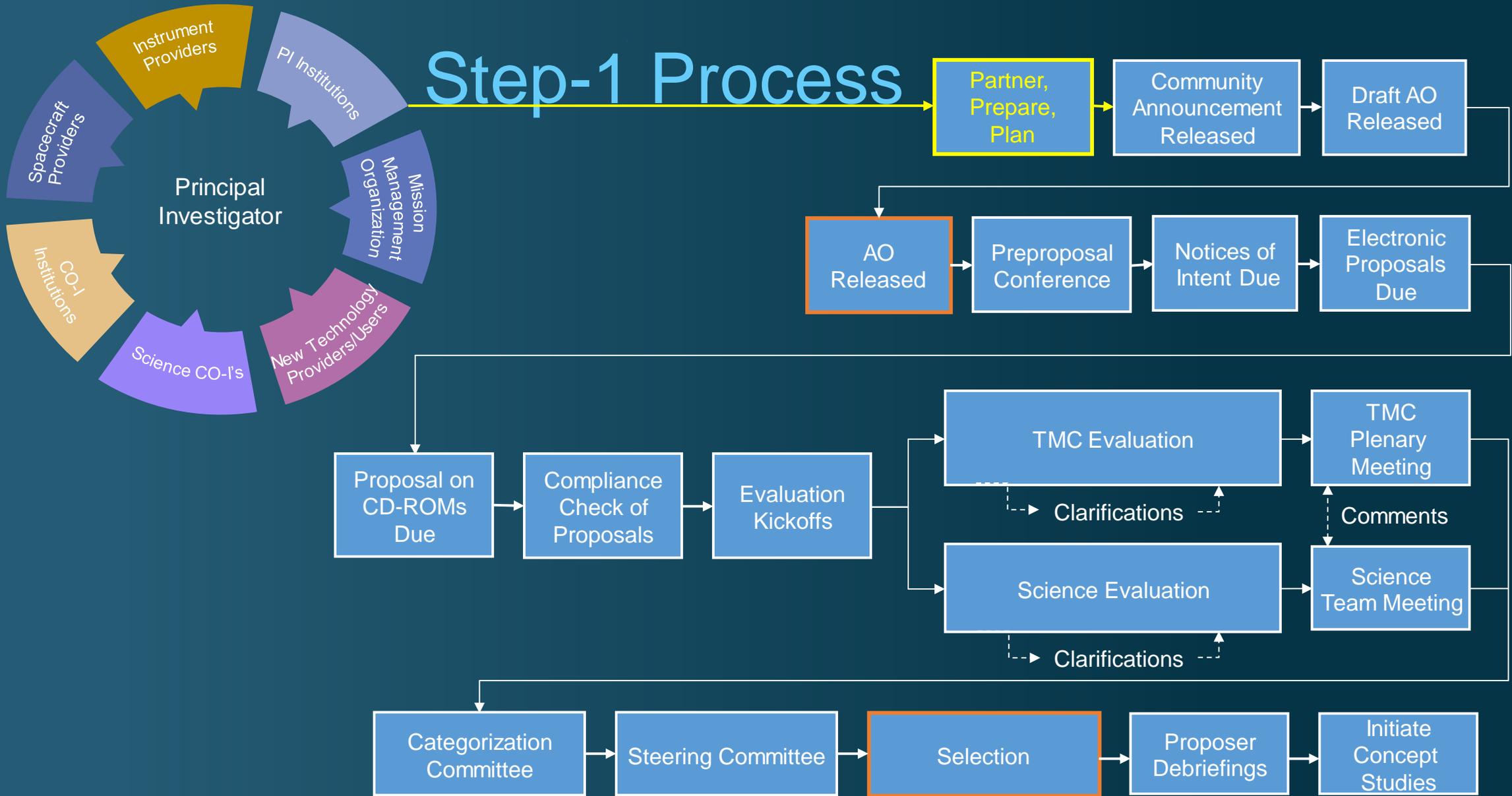
Ellen Gertsen
Executive Officer
NASA Science

November 18, 2019

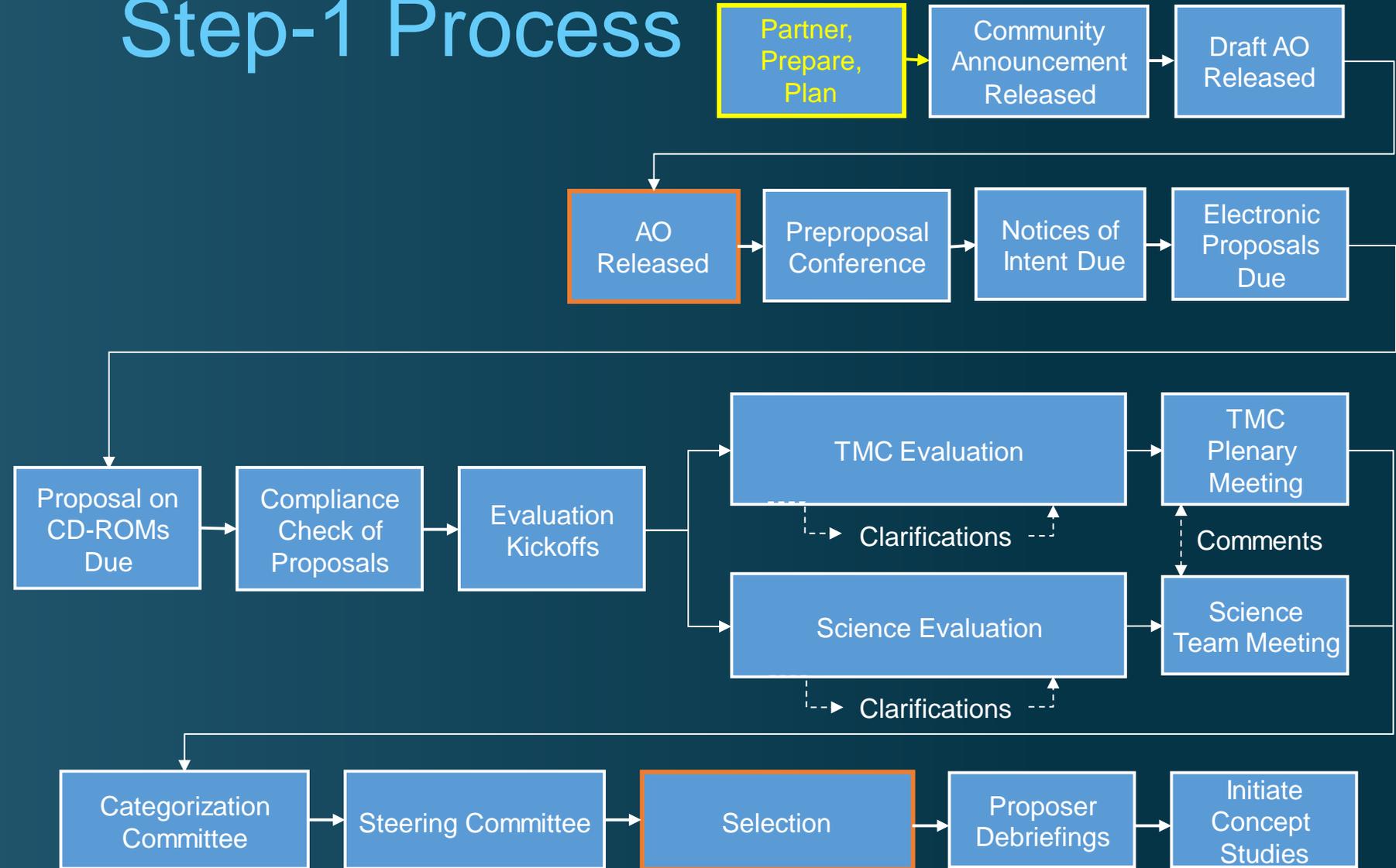
Step-1 Process



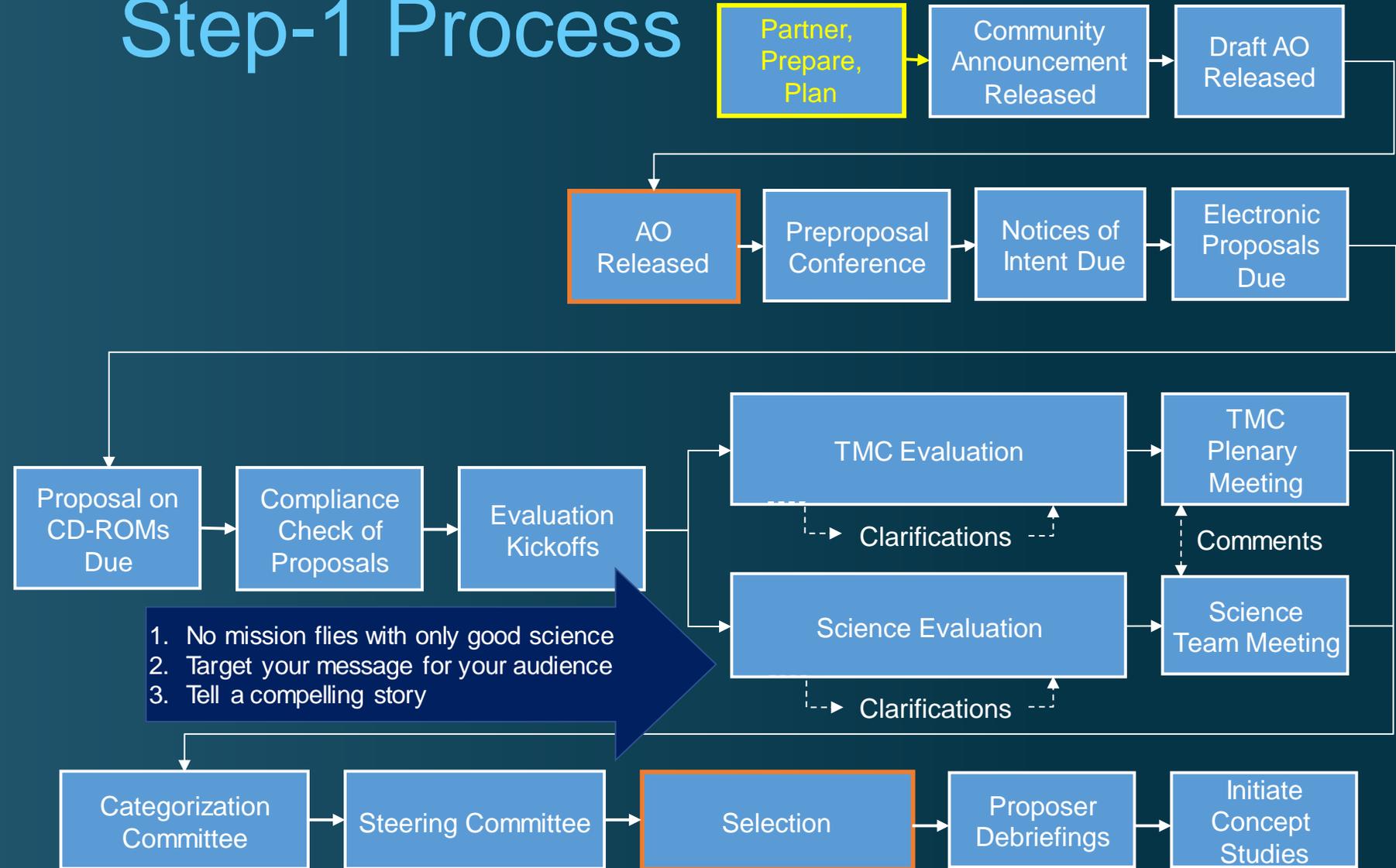
Step-1 Process



Step-1 Process



Step-1 Process



Scientific Merit (Form A) and Scientific Implementation Merit (Form B)

Form A - Scientific Merit

- Compelling nature and scientific priority of the proposed investigation's science goals and objectives
- Programmatic value of the proposed investigation
- Likelihood of scientific success
- Scientific value of the Threshold Science Mission

Form B - Scientific Implementation Merit

- Merit of the instruments and mission design for addressing the science goals and objectives
- Probability of technical success
- Merit of the data analysis, data availability, and data archiving plan and/or sample analysis plan
- Science resiliency
- Probability of science team success

Summary Evaluation	Basis for Summary Evaluation
Excellent	A comprehensive, thorough, and compelling proposal of exceptional merit that fully responds to the objectives of the AO as documented by numerous and/or significant strengths and having no major weaknesses
Very Good	A fully competent proposal of very high merit that fully responds to the objectives of the AO, whose strengths fully outbalance any weaknesses
Good	A competent proposal that represents a credible response to the AO, having neither significant strengths nor weaknesses and/or whose strengths and weaknesses essentially balance
Fair	A proposal that provides a nominal response to the AO, but whose weaknesses outweigh any perceived strengths
Poor	A seriously flawed proposal having one or more major weaknesses; e.g., an inadequate or flawed plan of research or lack of focus on the objectives of the AO

Mission Implementation Feasibility and Cost Risk (Form C)

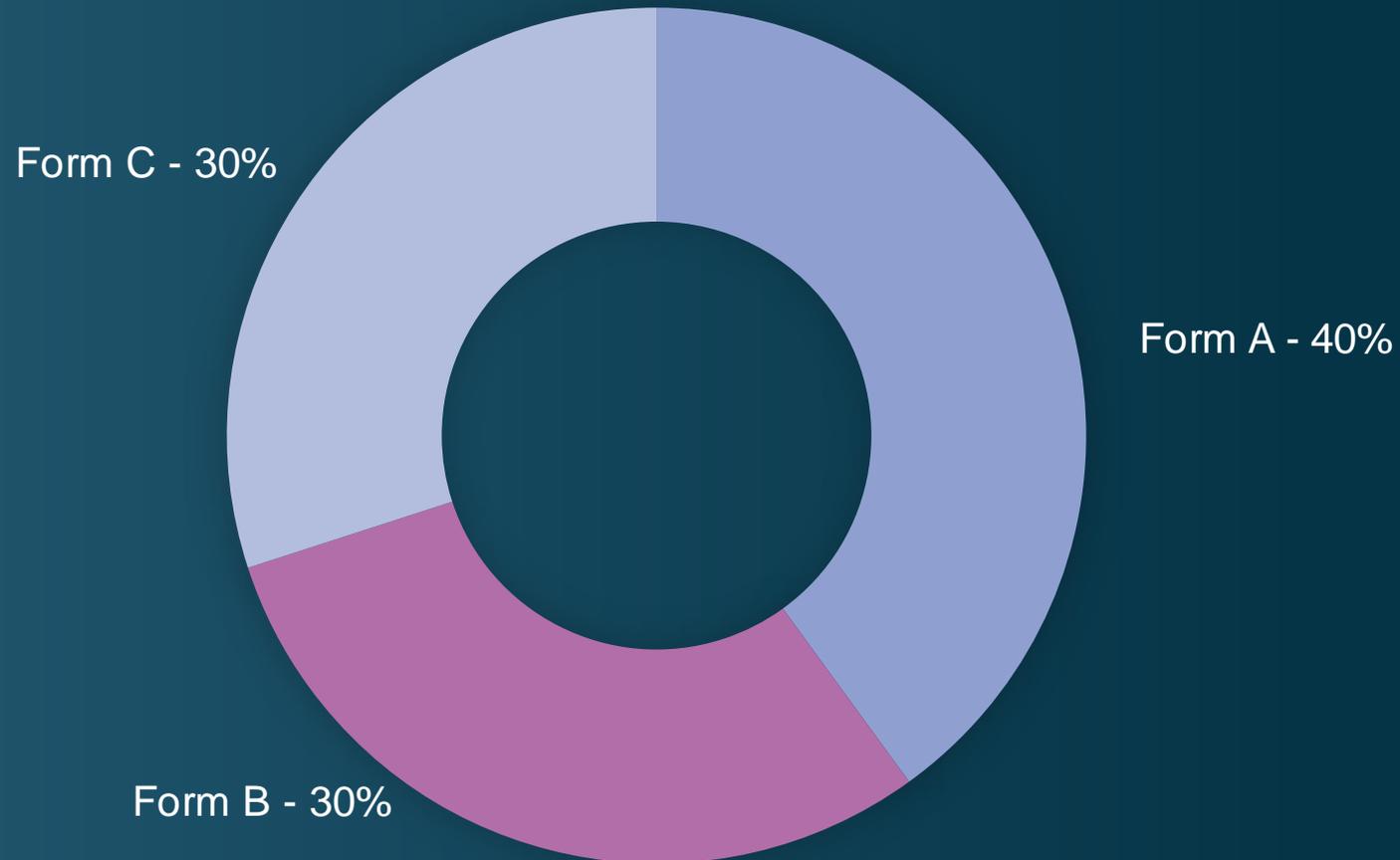
Form C – Mission Implementation Feasibility

- Adequacy and robustness of the instrument implementation plan
- Adequacy and robustness of the mission design and plan for mission operations
- Adequacy and robustness of the flight systems
- Adequacy and robustness of the management approach and schedule, including the capability of the management team
- Adequacy and robustness of the cost plan, including cost feasibility and cost risk

Summary Evaluation	Basis for Summary Evaluation
Low Risk	There are no problems evident in the proposal that cannot be normally solved within the time and cost proposed; problems are not of sufficient magnitude to doubt the proposer's capability to accomplish the investigation well within the available resources
Medium Risk	Problems have been identified, but are considered within the proposal team's capabilities to correct within available resources with good management and application of effective engineering resources; investigation design may be complex and resources tight
High Risk	One or more problems are of sufficient magnitude and complexity as to be deemed unsolvable within the available resources

See standard AO template: https://soma.larc.nasa.gov/StandardAO/sao_templates.html

Approximate Relative Weights of Evaluations in Categorization



Note: This is not an exact algorithm that is used by the panel to determine the category of a proposal; a low score on any one Form cannot be mitigated by high scores on the other two

Categorization

Category I

Well-conceived, meritorious, and feasible investigations pertinent to the goals of the program and the AO's objectives and offered by a competent investigator from an institution capable of supplying the necessary support to ensure that any essential flight hardware or other support can be delivered on time and that data can be properly reduced, analyzed, interpreted, and published in a reasonable time. Investigations in Category I are recommended for acceptance and normally will be displaced only by other Category I investigations.

Category II

Well-conceived, meritorious, and feasible investigations that are recommended for acceptance, but at a lower priority than Category I, whatever the reason.

Category III

Meritorious investigations that require further development. Category III investigations may be funded for further development and may be reconsidered at a later time for the same or other opportunities.

Category IV

Proposed investigations which are recommended for rejection for the particular opportunity under consideration, whatever the reason.

Scores and Categories

- Majority of Category I proposals have Science Implementation Merit of E/VG or E
- Only 1 “high risk” proposal has been Category I

		Category			
		I	II	III	IV
Form B	E	35	5	1	14
	E/VG	31	13	5	18
	VG	21	23	7	36
	VG/G	2	16	9	34
	G		10	6	42
	G/F			3	20
	F				21
	F/P				1
	P				1

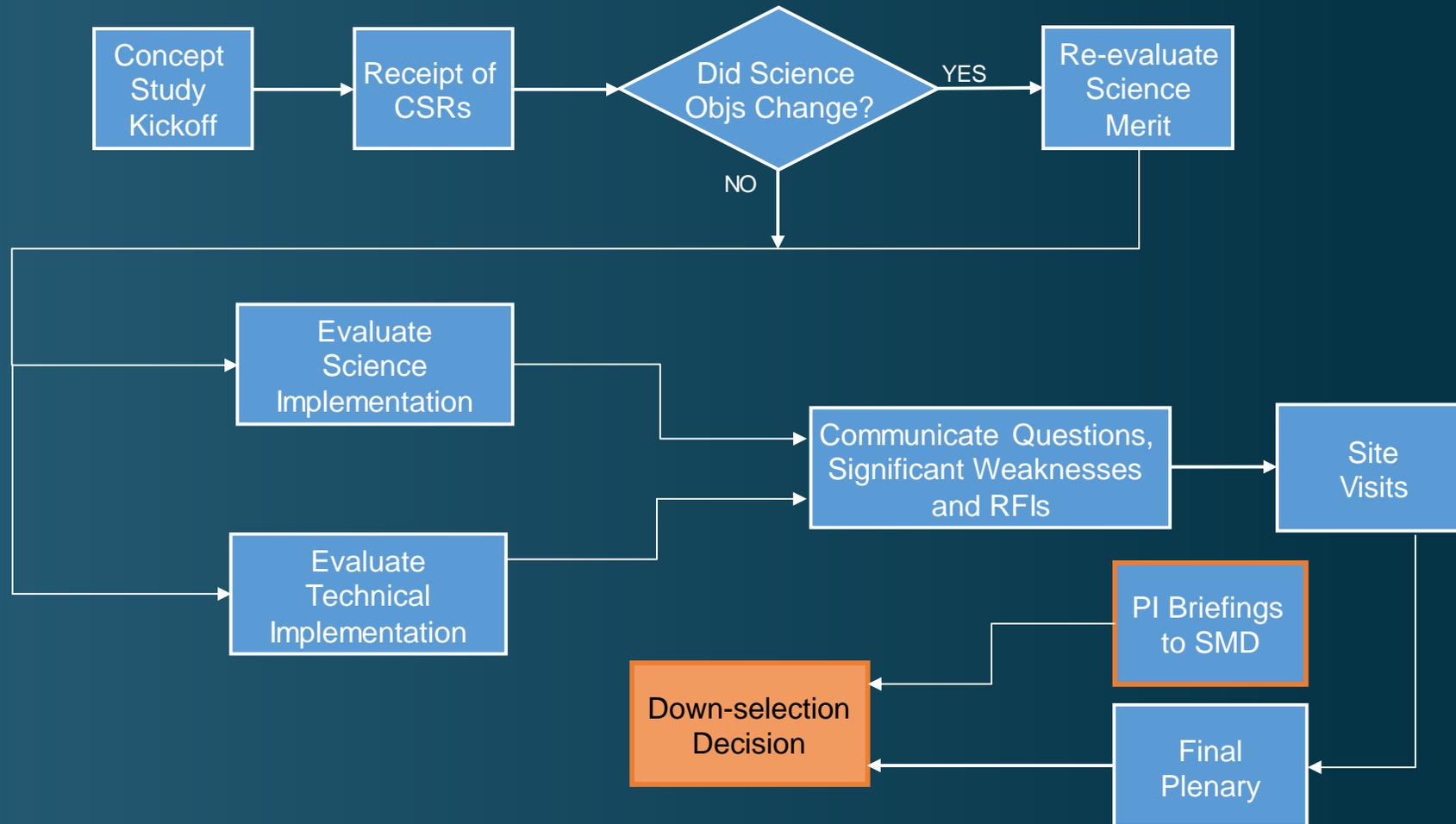
		Category			
		I	II	III	IV
Risk	L	53	22	3	20
	M	35	38	7	45
	H	1	7	21	122

Categories and Selections

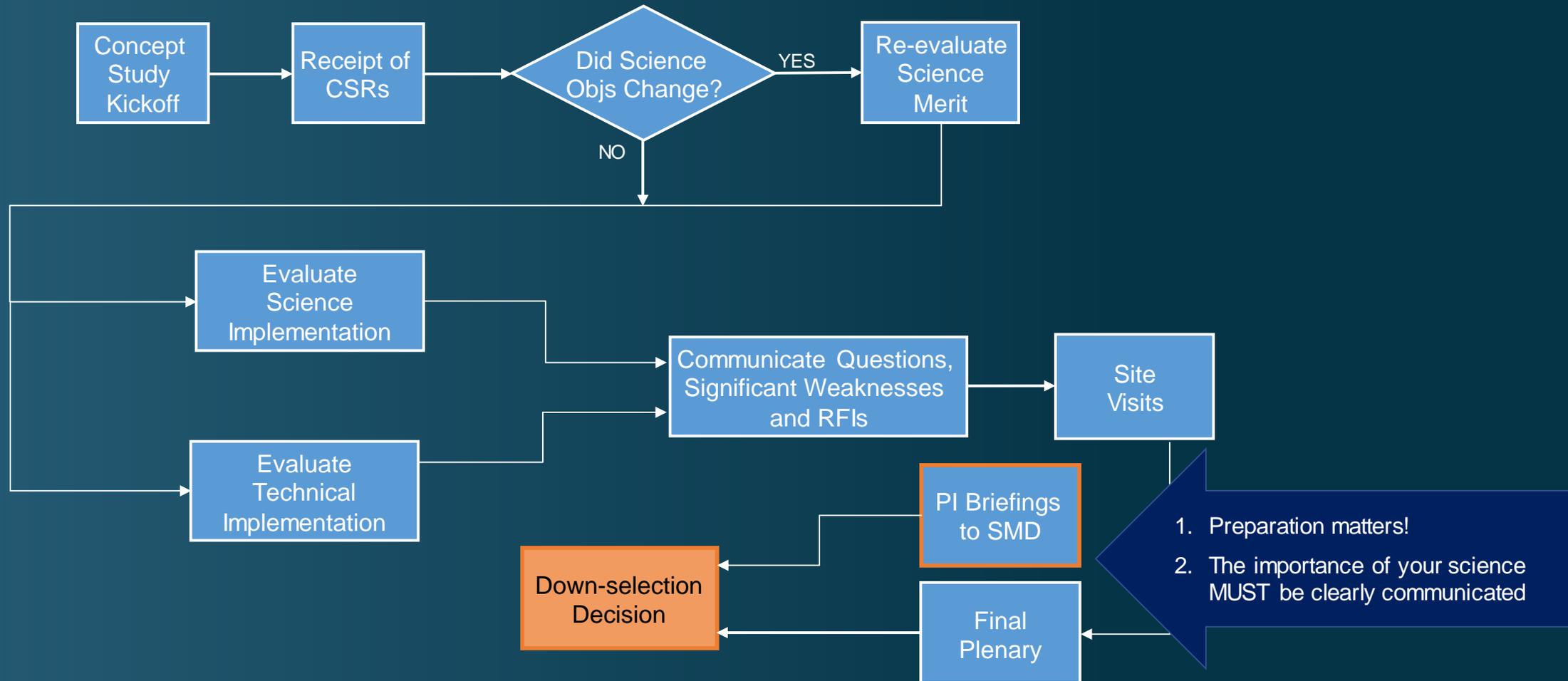
- Few Category II and no Category IV mission proposals have been selected
- Few proposals have been awarded technology funding

Category	Count	Selected	Declined	Tech Funding	Selection Rate
I	93	64	29	0	69%
II	68	3	64	1	4%
III	33	0	26	7	0%
IV	198	0	198	0	0%
Total	392	67	317	8	17%

Step-2 Process



Step-2 Process



Scientific Merit (Form A) and Scientific Implementation Merit (Form B)

Form A - Scientific Merit

- Not evaluated unless science objectives have changed since Step-1

Form B - Scientific Implementation Merit

- Merit of the instruments and mission design for addressing the science goals and objectives
- Probability of technical success, including assessment of technology readiness, heritage, environmental concerns, accommodation, and complexity of interfaces for the instrument design.
- Merit of the data analysis, data availability, and data archiving plan and/or sample analysis plan
- Science resiliency
- Probability of science team success; inclusion of career development opportunities to train next generation

Summary Evaluation	Basis for Summary Evaluation
Excellent	A comprehensive, thorough, and compelling proposal of exceptional merit that fully responds to the objectives of the AO as documented by numerous and/or significant strengths and having no major weaknesses
Very Good	A fully competent proposal of very high merit that fully responds to the objectives of the AO, whose strengths fully outbalance any weaknesses
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Mission Implementation Feasibility and Cost Risk (Form C)

Form C – Mission Implementation Feasibility

- Adequacy and robustness of the instrument implementation plan
- Adequacy and robustness of the mission design and plan for mission operations (including the approach the PI will utilize to make the flight worthiness determination if proposing non-NASA launch services, ensuring the adequacy of the technical work performed by the launch provider)
- Adequacy and robustness of the flight systems
- Adequacy and robustness of the management approach and schedule, including the capability of the management team
- Adequacy and robustness of the cost plan, including cost feasibility and cost risk, and all elements associated with a non-NASA launch or rideshare provider
- Adequacy of the risk management plan, including any risk mitigation plans for new technologies; any non-NASA launch delay, cancellation, and risk of mission failure attributed to launch service
- Assessment of the proposed mission operations plans, facilities, hardware and software, processes, and procedures
- Approach and feasibility for completing Phase B

Summary Evaluation	Basis for Summary Evaluation
Low Risk	There are no problems evident in the proposal that cannot be normally solved within the time and cost proposed; problems are not of sufficient magnitude to doubt the proposer's capability to accomplish the investigation well within the available resources
Medium Risk	Problems have been identified, but are considered within the proposal team's capabilities to correct within available resources with good management and application of effective engineering resources; investigation design may be complex and resources tight
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Standard AO template: https://soma.larc.nasa.gov/StandardAO/sao_templates.html

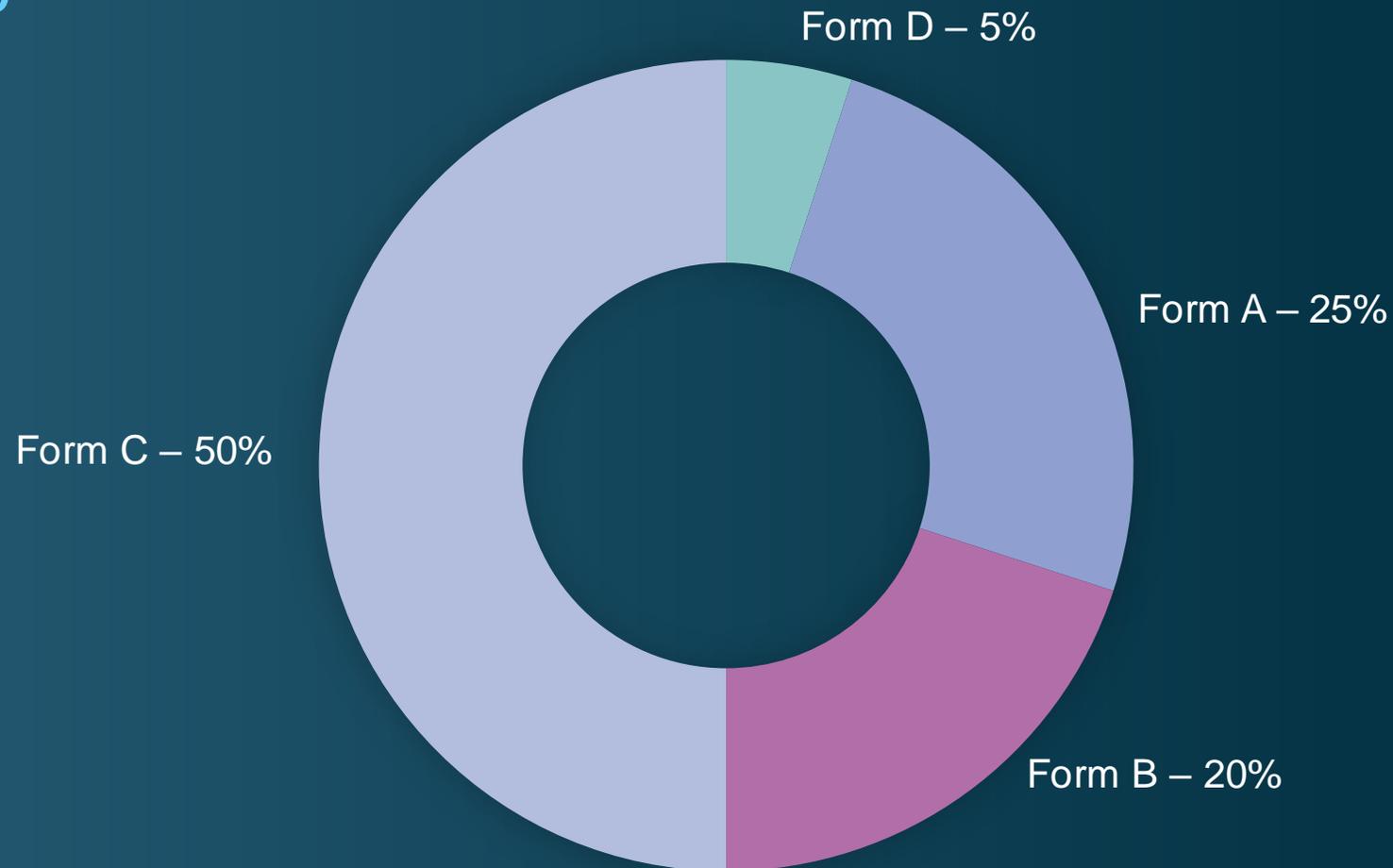
Mission Implementation Feasibility and Cost Risk (Form D)

Form D – Mission Implementation Feasibility

- Merit of Student Collaboration (SC), If proposed
 - Quality, Scope, Realism, and Appropriateness
 - Diversity, SC participant recruitment and retention practices or proposed inclusion strategies are described
 - Evaluation, SC has proposed evaluation methodology based on techniques appropriate to the SC activities proposed
- Merit of the Small Business Subcontracting Plans
 - Participation goals and quality and level of work performed by small businesses
 - Work performed by various categories of small business concerns

See standard AO template: https://soma.larc.nasa.gov/StandardAO/sao_templates.html

Approximate Relative Weights of Evaluations in Categorization



Note: This is not an exact algorithm that is used by the panel to determine the category of a proposal; a low score on any one Form cannot be mitigated by high scores on the other two

Selection Considerations

Sources of Information

- Focus is on Category I and Category II proposals
- All inputs from Reviews, HQ Briefings
- Home division recommends one more multiple selection

Key Participants

- Division Directors of all Divisions or their Representatives
- Deputies focused on Research, Programs, Exploration, etc.
- Representatives from Offices of Chief Engineer, Safety and Mission Assurance, General Counsel, etc.

Decision-making

- All above inputs are advisory
- Final decision by AA or representative in case of conflicts or perceived conflicts

The Core Team



Nomenclature

Announcement of Opportunity (AO)	Call for science investigations requiring a spaceflight mission
Mission of Opportunity (MOO)	Focused proposals to leverage specific flight opportunities
Technical, Management, and Cost (TMC)	Engineering, cost, schedule, etc. review of a mission proposal
Preliminary Major Weakness (PMW)	Potential major weakness sent to proposers for clarification
Clarification	When a proposing team points to the places in their proposal that explain away a preliminary major weakness
Plenary	Meeting of all evaluators in the same place, at the same time
Categorization	Process by which proposals are assigned selection priorities based on their evaluations
Steering	Process through which fairness of an evaluation process is judged
Debriefing	Formalized discussion between NASA and proposers regarding the strengths and weaknesses in their proposal
Step 1	First phase of a mission competition where proposals are submitted, evaluated, and selected to conduct a Concept Study
Concept Study	Period of time when a team fleshes out their mission concept; results are described in a Concept Study Report (CSR)

Nomenclature

Step 2	Second stage of a mission competition where Concept Study Reports are evaluated; not all AO's have a second step; e.g., Earth Venture Instruments
Down-selection	When NASA chooses which Step 2 Concept Studies to continue towards flight
Form A	Evaluation form where strengths and weaknesses of a proposed spaceflight investigation's Science Merit are recorded
Form B	Evaluation form where strengths and weaknesses of a proposed spaceflight investigation's Science Implementation Merit are recorded
Form C	Evaluation form where strengths and weaknesses of a proposed spaceflight investigation's TMC Feasibility are recorded

A vibrant space-themed background featuring a large blue circle on the right side. The background is filled with various celestial bodies: a bright yellow sun in the lower left, a blue and white Earth in the bottom right, a large dark blue moon in the center, a reddish-orange planet in the upper left, and a ringed planet (Saturn) in the middle left. The sky is a mix of blue, green, and yellow, with numerous white stars and a blue nebula-like structure in the upper right.

Peer Review Panels

- NASA Science makes decisions based on competition and peer review
- Volunteering on a review panel is highly encouraged
 - Opportunity to learn how to write successful proposals
 - NASA provides honorarium for participants
- More information on how to volunteer here:
<https://science.nasa.gov/researchers/volunteer-review-panels>

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Funding Opportunities: Grant Solicitations

- The 2019 version of Research Opportunities in Earth and Space Science (ROSES-19) has been posted at <http://solicitation.nasaprs.com/ROSES2019> on March 14, 2019.
- Table 2 with all program elements organized by due date may be found at <http://solicitation.nasaprs.com/ROSES2019table2>
- Table 3 with all program elements organized by subject matter may be found at <http://solicitation.nasaprs.com/ROSES2019table3>
- The FAQ on what's new in ROSES-2019 has been posted at <http://science.nasa.gov/researchers/sara/faqs/#1>
- We have a few ways for proposers to keep up to date with changes to ROSES-19. You may:
 - Subscribe to the SMD NSPIRES mailing lists (by logging in at <http://nspires.nasaprs.com/> and checking the appropriate boxes under Account Management and Email Subscriptions),
 - Sign up for the ROSES-2019 RSS feed for clarifications, corrections and amendments at <http://science.nasa.gov/researchers/sara/grant-solicitations/roses-2019/> and
 - Subscribe to the relevant ROSES-2019 due date Google calendars. Instructions have been posted at <https://science.nasa.gov/researchers/sara/library-and->

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